



Newborn Screening Quality Assurance Program

QUALITY CONTROL

MIDYEAR REPORT

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INTRODUCTION

The Newborn Screening Quality Assurance Program (NSQAP), Centers for Disease Control and Prevention (CDC), distributed dried-blood-spot (DBS) quality control (QC) materials for thyroxine (T_4), thyroid-stimulating hormone (TSH), 17 α -hydroxyprogesterone (17-OHP), total galactose (Gal), phenylalanine (Phe), leucine (Leu), methionine (Met), tyrosine (Tyr), valine (Val), citrulline (Cit), and ten acylcarnitines (C2, C3, C4, C5, C5DC, C6, C8, C10, C14, C16) to laboratories operating newborn screening programs and to manufacturers of screening test products. Included with each semiannual shipment of QC specimens were data-report forms to be completed and returned to CDC.

This midyear report contains a summary of the QC data submitted during the first half of 2005 by state, contract, and private laboratories in the United States; international participants; and manufacturers of screening test products.

----- QC DATA -----
see pages 4-35

QUALITY CONTROL MATERIALS

The QC specimen lots were provided as 6-month supplies of DBSs on filter paper. All DBS QC lots were prepared from whole blood of 55% hematocrit with lysed red blood cells. The QC materials were enriched with predetermined quantities of the selected analytes and dispensed in 100 μ L aliquots on Schleicher & Schuell (Keene, NH) grade 903 filter paper.

A QC shipment for T_4 , TSH, or 17-OHP consisted of blood-spot materials from three lots per analyte, with each lot containing a different concentration of analyte. A QC shipment for Gal, Phe, Leu, Met, Tyr, Val, Cit, and the acylcarnitines consisted of blood-spot cards from four different lots.

The QC materials were supplied for use as external controls in quantities sufficient to maintain continuity and transcend changes in production lots of routinely used method- or kit-control materials. The external QC materials were intended to supplement the participants' method- or kit-control materials at periodic intervals and to allow participants to monitor the long-term stability of their assays. The QC materials should not be used as routine daily QCs.

PARTICIPANTS' RESULTS

For this midyear report, we compiled the data that each participant reported from five analytic runs of specimens from each QC lot and calculated mean values and standard deviations from these data. Data values outside the 99% confidence interval for each QC lot were not included in the computations. We could not include qualitative data, data submitted as inequalities or ranges, data submitted in unidentified units, or data from more than five analytic runs per specimen lot per participant. Some participants submitted results in units other than those requested on the data-report forms. To ensure that all results are appropriately entered in the CDC database, participants should convert their results to the requested units before entering them on the data-report forms.

The reported QC data are summarized in tables on pages 4-35, which show the analyte by series of QC lots, the number of measurements (N), the mean values, and the standard deviations (SD) by kit or analytic method. In addition, we used a weighted linear regression analysis to examine the comparability by method of reported versus enriched concentrations. Results of the linear regression analyses are summarized in the tables on pages 4-35.

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DISCUSSION

The enriched values of the QC specimen lots, shown in the tables for each lot, do not take into account the endogenous levels of the analytes; however, analytic results indicate that endogenous concentrations are negligible for all analytes except Phe, Leu, Met, Tyr, Val, Cit, and the acylcarnitines. For Phe, Leu, Met, Tyr, Val, Cit, and the acylcarnitines, the nonenriched base pools were distributed as the first QC specimen lot in each series so that participants could measure the endogenous Phe, Leu, Met, Tyr, Val, Cit, or acylcarnitine concentration of the series. QC lots 421–424 and 425–428 were enriched with Gal, Phe, Leu, Met, Tyr, Val, and Cit. QC lots 461–464 were enriched with acylcarnitines. All other QC lots were enriched with one analyte per lot. Gal lots 421–424 and 425–428 were enriched with equimolar quantities of simple galactose and galactose-1-phosphate.

The tables, which summarize reported QC results (pages 4–35), provide data for method-related differences in analytic recoveries and method bias. Because we prepared each QC lot series from a single batch of hematocrit-adjusted, nonenriched blood, the endogenous concentration was the same for all specimens in a lot series. We calculated the within-laboratory SD component of the total SD and used the reported QC data from multiple analytic runs for regression analyses. We calculated the Y-intercept and slope listed in each table using all analyte concentrations within a lot series (e.g., lots 411, 412, and 413). Because only three or four concentrations of QC materials are available for each analyte, a bias error in any one pool can markedly influence the slope and intercept. The Y-intercept provides

one measure of the endogenous concentration level for an analyte. For Phe, Leu, Met, Tyr, Val, Cit, and the acylcarnitines, participants measured the endogenous concentration levels by analyzing the nonenriched QC lots. When endogenous levels were compared for the amino acids and the acylcarnitines, we found them to be similar for all methods per analyte. Ideally, the slope should be 1.0, and most slopes were close to this value, ranging from 0.8 to 1.2 but some were a bit farther away. For example, for one Gal method, the slope was 1.4; for one Leu method, the slope was 1.5; for one Val method, the slope was 0.7; and for one C5DC method, the slope was 0.3. The C5DC methods show the greatest variation in slopes among all analytes. For C5DC, note that for both kit and non-kit users, the calculation of concentrations for the QC lots varied with type of internal standard. Data are not sorted by internal standard type. In a survey, participants reported using d₉-C5, d₃-C8, d₃-C10, d₃-C12, d₃-C16, or d₆-C5DC as an internal standard for C5DC. These slope deviations may be related to analytic ranges for calibration curves. Because the endogenous concentration was the same for all QC lots within a series, it should not affect the slope of the regression line among methods. Generally, slope values substantially different from 1.0 indicate that a method has an analytic bias.

Each year, with the extensive cooperation of Schleicher & Schuell, Incorporated, and Whatman Incorporated, we routinely monitor the absorption characteristics of approved filter papers. (Participants may refer to page 6 of the 2004 Newborn Screening Quality Assurance Program summary report* for charts of the serum absorbancies

of 21 grade 903 filter paper lots and to page 7 for charts of the serum absorbancies of 11 BFC 180 filter paper lots that CDC monitored.) The following Schleicher & Schuell filter paper lots were used in the production of QC specimen lots distributed during the first 6 months of 2005: W001 (Lots 351–353, 411–413) and W011 (Lots 301–303, 421–424, 425–428, 451–453, 461–464).

* Bell CJ, editor. Newborn Screening Quality Assurance Program: 2004 Annual Summary Report. Atlanta: Centers for Disease Control and Prevention, 2005;22:1-79.

<http://www.cdc.gov/labstandards/nsqap.htm>

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<http://www.cdc.gov/labstandards/nsqap.htm>

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Most Recent Program Reports

Date	Report	Format
May 2005	Midyear QC Report	PDF
Mar 2005	2004 Annual Summary Report	PDF

[Previous Annual Summary and Midyear QC Reports \(2002 - 2004\)](#)

Quarterly Proficiency Testing Reports

Category	Format
Sickle Cell/Hemoglobins	PDF
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Anti-HIV-1	PDF

Conferences

Date(s)	Conference
May 2005	Unsatisfactory Newborn Screening Specimens: Interpretations, Studies and Current Trends Web Conference
Jan/Feb 2004	Tandem Mass Spectrometry QC/QA for Newborn Screening Web Conference

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Division of Laboratory Sciences



2005 Quality Control Data
Summaries of Statistical Analyses

THYROXINE ($\mu\text{g T}_4/\text{dL serum}$)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 301 - Enriched 2 $\mu\text{g}/\text{dL}$ serum						
Diagnostic Products	10	2.3	0.3	0.3	0.3	1.0
MP Biomedicals (ICN) RIA	30	2.0	0.4	0.4	0.3	0.9
Neo-Genesis (Neomet) Accuwell	39	1.8	0.4	0.5	-0.1	1.0
Delfia	98	1.6	0.4	0.5	-0.2	0.9
AutoDelfia	299	1.5	0.4	0.5	-0.4	1.0
In House	10	2.5	0.6	0.6	1.5	0.6
Other	30	2.1	0.7	0.7	0.1	1.0

Lot 302 - Enriched 7 $\mu\text{g}/\text{dL}$ serum

Diagnostic Products	10	7.0	0.8	0.8	0.3	1.0
MP Biomedicals (ICN) RIA	40	6.9	1.1	1.2	0.3	0.9
Neo-Genesis (Neomet) Accuwell	29	7.3	0.7	0.7	-0.1	1.0
Delfia	99	6.4	0.7	0.9	-0.2	0.9
AutoDelfia	294	6.4	0.7	1.6	-0.4	1.0
In House	10	5.9	0.3	0.3	1.5	0.6
Other	30	7.0	0.9	0.9	0.1	1.0

Lot 303 - Enriched 11 $\mu\text{g}/\text{dL}$ serum

Diagnostic Products	10	11.0	1.3	1.3	0.3	1.0
MP Biomedicals (ICN) RIA	39	10.2	0.9	1.4	0.3	0.9
Neo-Genesis (Neomet) Accuwell	40	10.9	1.5	1.5	-0.1	1.0
Delfia	99	9.8	1.0	1.2	-0.2	0.9
AutoDelfia	299	10.2	1.0	2.2	-0.4	1.0
In House	10	7.6	0.6	0.6	1.5	0.6
Other	30	10.8	1.8	2.1	0.1	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

THYROID-STIMULATING HORMONE (μIU TSH/mL serum)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 411 - Enriched 25 μIU/mL serum						
Diagnostic Products	29	33.4	2.7	2.8	0.3	1.3
Neo-Genesis (Neomet) Accuwell	30	24.4	2.5	5.3	-3.9	1.1
MP Biomedicals (ICN) IRMA	50	36.2	2.0	7.4	5.3	1.2
MP Biomedicals (ICN) ELISA	39	24.9	2.3	2.8	0.1	1.0
Delfia	521	27.2	3.3	4.4	-1.5	1.1
AutoDelfia	642	27.3	2.4	3.5	-1.3	1.2
Ani Labsystems (Thermo)	31	24.4	1.2	3.7	1.6	1.0
Bio-Rad Quantase	126	31.0	3.9	5.6	-3.3	1.4
TecnoSuma UMEELISA	10	29.8	2.9	2.9	-3.3	1.3
Bioclone ELISA	10	32.6	3.2	3.2	1.8	1.3
DiaSorin	84	26.0	2.8	4.1	0.4	1.1
In House	87	28.4	3.2	5.3	2.2	1.1
Other	171	28.3	3.0	7.4	1.0	1.1
Lot 412 - Enriched 40 μIU/mL serum						
Diagnostic Products	29	50.7	3.5	3.6	0.3	1.3
Neo-Genesis (Neomet) Accuwell	30	39.0	4.5	5.7	-3.9	1.1
MP Biomedicals (ICN) IRMA	48	52.7	3.9	11.0	5.3	1.2
MP Biomedicals (ICN) ELISA	38	39.6	3.6	4.6	0.1	1.0
Delfia	521	43.8	4.8	6.5	-1.5	1.1
AutoDelfia	634	45.3	3.6	4.7	-1.3	1.2
Ani Labsystems (Thermo)	32	43.0	3.8	4.4	1.6	1.0
Bio-Rad Quantase	106	50.9	6.2	10.8	-3.3	1.4
TecnoSuma UMEELISA	10	47.9	10.3	10.3	-3.3	1.3
Bioclone ELISA	10	55.8	11.3	11.3	1.8	1.3
DiaSorin	84	46.0	4.4	6.2	0.4	1.1
In House	91	46.5	7.5	10.4	2.2	1.1
Other	178	47.7	5.0	12.5	1.0	1.1
Lot 413 - Enriched 80 μIU/mL serum						
Diagnostic Products	30	103.7	5.8	14.0	0.3	1.3
Neo-Genesis (Neomet) Accuwell	30	84.4	8.7	12.8	-3.9	1.1
MP Biomedicals (ICN) IRMA	48	102.2	7.4	18.1	5.3	1.2
MP Biomedicals (ICN) ELISA	41	79.4	10.4	10.8	0.1	1.0
Delfia	499	89.8	9.8	11.8	-1.5	1.1
AutoDelfia	639	91.0	7.8	10.7	-1.3	1.2
Ani Labsystems (Thermo)	31	79.2	5.1	12.1	1.6	1.0
Bio-Rad Quantase	105	105.8	10.5	17.6	-3.3	1.4
TecnoSuma UMEELISA	10	100.9	5.0	5.0	-3.3	1.3
Bioclone ELISA	10	104.8	18.5	18.5	1.8	1.3
DiaSorin	82	86.7	8.3	12.4	0.4	1.1
In House	82	88.4	10.0	23.2	2.2	1.1
Other	168	91.1	7.9	19.7	1.0	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

TOTAL GALACTOSE (mg Gal/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Enriched 5 mg/dL whole blood						
Fluorometric Manual	137	5.9	0.9	1.2	0.8	1.0
Bioassay	10	4.4	0.6	0.6	0.0	0.8
Fluor Cont Flow, Kit	30	7.6	0.7	1.5	2.1	1.0
Colorimetric	29	7.7	0.9	1.1	1.4	1.2
PerkinElmer Neonatal Kit	80	8.0	0.8	1.4	4.1	0.8
Neo-Genesis (Neomet) Accuwell	30	6.3	0.4	0.6	0.2	1.1
Bio-Rad Quantase	116	6.8	0.8	1.4	0.1	1.3
MP Biomedicals (ICN) Enzyme	30	9.6	0.7	2.1	3.3	1.3
Interscientific Enzyme	39	6.0	0.3	0.4	0.3	1.1
Astoria-Pacific	40	9.1	0.7	0.7	2.8	1.1
Other	70	6.7	1.7	1.9	0.7	1.1
Lot 422 - Enriched 10 mg/dL whole blood						
Fluorometric Manual	138	11.0	1.2	1.4	0.8	1.0
Bioassay	10	7.6	0.8	0.8	0.0	0.8
Fluor Cont Flow, Kit	30	12.1	1.0	1.7	2.1	1.0
Colorimetric	30	13.4	1.8	1.8	1.4	1.2
PerkinElmer Neonatal Kit	80	12.0	1.1	1.4	4.1	0.8
Neo-Genesis (Neomet) Accuwell	30	10.6	1.0	1.5	0.2	1.1
Bio-Rad Quantase	119	12.6	1.3	1.9	0.1	1.3
MP Biomedicals (ICN) Enzyme	30	17.4	1.3	3.6	3.3	1.3
Interscientific Enzyme	39	10.9	1.1	1.1	0.3	1.1
Astoria-Pacific	40	13.9	0.9	1.1	2.8	1.1
Other	68	11.2	1.4	1.7	0.7	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

TOTAL GALACTOSE (mg Gal/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 423 - Enriched 15 mg/dL whole blood						
Fluorometric Manual	140	15.6	1.4	1.6	0.8	1.0
Bioassay	10	10.6	1.6	1.6	0.0	0.8
Fluor Cont Flow, Kit	30	17.3	0.8	1.9	2.1	1.0
Colorimetric	30	20.2	2.8	3.3	1.4	1.2
PerkinElmer Neonatal Kit	80	17.1	1.5	1.9	4.1	0.8
Neo-Genesis (Neomet) Accuwell	30	15.7	1.4	1.5	0.2	1.1
Bio-Rad Quantase	118	19.5	1.9	3.4	0.1	1.3
MP Biomedicals (ICN) Enzyme	30	23.4	1.7	4.9	3.3	1.3
Interscientific Enzyme	38	15.4	1.3	2.2	0.3	1.1
Astoria-Pacific	39	19.3	0.9	1.1	2.8	1.1
Other	67	16.4	2.2	2.8	0.7	1.1
Lot 424 - Enriched 30 mg/dL whole blood						
Fluorometric Manual	142	30.9	2.9	3.8	0.8	1.0
Bioassay	10	23.3	3.2	3.2	0.0	0.8
Fluor Cont Flow, Kit	30	33.2	2.2	2.7	2.1	1.0
Colorimetric	30	38.3	5.3	6.3	1.4	1.2
PerkinElmer Neonatal Kit	79	28.4	2.4	3.0	4.1	0.8
Neo-Genesis (Neomet) Accuwell	30	33.0	2.7	3.4	0.2	1.1
Bio-Rad Quantase	119	38.7	3.7	8.3	0.1	1.3
MP Biomedicals (ICN) Enzyme	20	43.6	0.9	2.9	3.3	1.3
Interscientific Enzyme	40	32.3	2.3	2.9	0.3	1.1
Astoria-Pacific	39	37.3	1.5	1.8	2.8	1.1
Other	68	33.5	4.0	6.1	0.7	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

TOTAL GALACTOSE (mg Gal/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Enriched 5 mg/dL whole blood						
Fluorometric Manual	148	5.2	1.0	1.3	-0.6	1.1
Bioassay	10	4.2	0.5	0.5	-0.5	0.8
Fluor Cont Flow, Kit	30	6.6	0.5	1.3	0.6	1.1
Colorimetric	37	7.1	0.9	1.2	-0.3	1.3
PerkinElmer Neonatal Kit	80	7.9	1.0	1.9	3.3	0.9
Neo-Genesis (Neomet) Accuwell	30	6.6	0.5	0.7	0.0	1.1
Bio-Rad Quantase	117	6.9	0.9	1.6	0.3	1.2
MP Biomedicals (ICN) Enzyme	30	10.1	0.9	1.0	2.8	1.4
Interscientific Enzyme	40	4.7	0.6	0.8	-0.6	1.0
Astoria-Pacific	49	7.2	0.7	0.9	1.0	1.1
Other	70	6.9	1.2	2.1	0.1	1.2

Lot 426 - Enriched 10 mg/dL whole blood

Fluorometric Manual	147	10.3	1.1	1.2	-0.6	1.1
Bioassay	10	7.0	0.4	0.4	-0.5	0.8
Fluor Cont Flow, Kit	30	11.3	0.7	1.5	0.6	1.1
Colorimetric	37	12.8	1.6	1.8	-0.3	1.3
PerkinElmer Neonatal Kit	79	12.0	1.1	1.6	3.3	0.9
Neo-Genesis (Neomet) Accuwell	30	11.3	0.6	1.5	0.0	1.1
Bio-Rad Quantase	116	12.9	1.3	2.2	0.3	1.2
MP Biomedicals (ICN) Enzyme	30	17.2	1.3	2.0	2.8	1.4
Interscientific Enzyme	42	10.1	1.1	1.3	-0.6	1.0
Astoria-Pacific	50	12.4	0.8	1.5	1.0	1.1
Other	67	11.9	1.6	2.2	0.1	1.2

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

TOTAL GALACTOSE (mg Gal/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 427 - Enriched 15 mg/dL whole blood						
Fluorometric Manual	147	14.6	1.6	1.7	-0.6	1.1
Bioassay	10	9.9	1.0	1.0	-0.5	0.8
Fluor Cont Flow, Kit	29	14.9	1.0	2.3	0.6	1.1
Colorimetric	38	17.3	2.0	2.6	-0.3	1.3
PerkinElmer Neonatal Kit	79	15.3	1.1	1.5	3.3	0.9
Neo-Genesis (Neomet) Accuwell	30	15.2	1.2	2.1	0.0	1.1
Bio-Rad Quantase	117	17.1	1.5	2.6	0.3	1.2
MP Biomedicals (ICN) Enzyme	29	22.8	1.5	1.8	2.8	1.4
Interscientific Enzyme	37	14.0	0.7	0.8	-0.6	1.0
Astoria-Pacific	50	16.3	1.2	2.2	1.0	1.1
Other	67	15.6	1.9	2.6	0.1	1.2

Lot 428 - Enriched 30 mg/dL whole blood

Fluorometric Manual	144	32.2	2.5	3.0	-0.6	1.1
Bioassay	10	23.3	2.9	2.9	-0.5	0.8
Fluor Cont Flow, Kit	30	32.9	2.7	3.5	0.6	1.1
Colorimetric	37	39.1	3.9	4.7	-0.3	1.3
PerkinElmer Neonatal Kit	79	29.2	2.1	2.6	3.3	0.9
Neo-Genesis (Neomet) Accuwell	30	34.4	2.7	5.7	0.0	1.1
Bio-Rad Quantase	120	37.2	3.3	6.5	0.3	1.2
MP Biomedicals (ICN) Enzyme	9	46.0	0.0	0.0	2.8	1.4
Interscientific Enzyme	40	30.7	1.0	2.9	-0.6	1.0
Astoria-Pacific	50	35.0	1.9	5.6	1.0	1.1
Other	70	35.5	5.1	8.7	0.1	1.2

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

17 α -HYDROXYPROGESTERONE (ng 17-OHP/mL serum)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 351 - Enriched 25 ng/mL serum						
MP Biomedicals (ICN) RIA	10	25.6	2.2	2.2	-0.8	1.0
Neo-Genesis (Neomet) Accuwell	19	26.8	3.1	3.1	1.5	1.0
Delfia	140	27.1	2.7	4.0	-2.2	1.1
AutoDelfia	363	28.2	2.6	3.2	0.2	1.1
Bio-Rad Quantase	20	25.9	9.8	9.8	4.8	0.8
Bayer Medical EIA	10	29.0	2.5	2.5	-0.5	1.1
In house	10	29.9	4.2	4.2	4.5	0.9
Other	10	25.6	2.4	2.4	5.8	0.8

Lot 352 - Enriched 50 ng/mL serum

MP Biomedicals (ICN) RIA	10	44.8	4.7	4.7	-0.8	1.0
Neo-Genesis (Neomet) Accuwell	20	48.5	6.3	6.5	1.5	1.0
Delfia	139	51.3	4.6	7.4	-2.2	1.1
AutoDelfia	361	53.1	4.2	5.4	0.2	1.1
Bio-Rad Quantase	18	44.6	5.7	7.9	4.8	0.8
Bayer Medical EIA	10	47.4	7.0	7.0	-0.5	1.1
In house	10	46.2	6.1	6.1	4.5	0.9
Other	10	47.1	5.5	5.5	5.8	0.8

Lot 353 - Enriched 100 ng/mL serum

MP Biomedicals (ICN) RIA	10	97.6	16.6	16.6	-0.8	1.0
Neo-Genesis (Neomet) Accuwell	19	98.9	15.7	17.4	1.5	1.0
Delfia	144	110.0	10.7	18.1	-2.2	1.1
AutoDelfia	367	109.1	11.2	13.4	0.2	1.1
Bio-Rad Quantase	19	86.8	30.4	30.4	4.8	0.8
Bayer Medical EIA	10	106.5	10.9	10.9	-0.5	1.1
In house	10	96.9	9.0	9.0	4.5	0.9
Other	10	86.8	14.7	14.7	5.8	0.8

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2004 Quality Control Data
Summaries of Statistical Analyses

17 α -HYDROXYPROGESTERONE (ng 17-OHP/mL serum)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 451 - Enriched 25 ng/mL serum						
MP Biomedicals (ICN) RIA	19	26.4	2.1	2.1	2.7	1.0
Neo-Genesis (Neomet) Accuwell	20	30.0	4.4	4.5	6.0	1.0
Delfia	159	27.1	2.6	3.8	-0.1	1.1
AutoDelfia	362	29.1	2.7	3.5	-0.5	1.2
Bio-Rad Quantase	29	27.0	8.1	8.7	-1.3	1.0
Bayer Medical EIA	10	28.0	2.8	2.8	1.0	1.1
In house	10	24.3	3.5	3.5	3.2	0.8
Other	29	27.7	2.6	3.0	2.4	1.0

Lot 452 - Enriched 50 ng/mL serum

MP Biomedicals (ICN) RIA	20	54.8	6.4	6.4	2.7	1.0
Neo-Genesis (Neomet) Accuwell	19	60.7	8.5	9.1	6.0	1.0
Delfia	159	54.8	6.0	7.6	-0.1	1.1
AutoDelfia	362	58.0	5.5	6.6	-0.5	1.2
Bio-Rad Quantase	30	46.5	6.0	10.6	-1.3	1.0
Bayer Medical EIA	10	55.7	8.8	8.8	1.0	1.1
In house	17	45.8	4.5	10.5	3.2	0.8
Other	30	55.0	6.0	6.8	2.4	1.0

Lot 453 - Enriched 100 ng/mL serum

MP Biomedicals (ICN) RIA	20	102.5	9.1	10.5	2.7	1.0
Neo-Genesis (Neomet) Accuwell	19	108.5	25.4	25.4	6.0	1.0
Delfia	154	109.2	11.1	19.4	-0.1	1.1
AutoDelfia	367	117.1	11.0	13.2	-0.5	1.2
Bio-Rad Quantase	28	102.9	26.0	28.1	-1.3	1.0
Bayer Medical EIA	10	109.8	16.7	16.7	1.0	1.1
In house	18	88.1	14.4	22.5	3.2	0.8
Other	30	105.8	10.7	12.9	2.4	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

PHENYLALANINE (mg Phe/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Nonenriched 0 mg/dL whole blood						
Bacterial Inhibition Assays	60	1.6	0.4	0.5	1.7	0.9
Fluorometric Manual	70	1.9	0.2	0.2	2.0	1.0
Fluor Cont Flo, In house	22	2.3	0.2	0.8	2.3	1.2
Fluor cont Flo, Kit	120	1.9	0.2	0.5	2.1	1.0
Colorimetric	78	1.9	0.2	0.3	2.1	1.2
PerkinElmer Neonatal Kit	226	1.4	0.2	0.3	1.5	0.9
Neo-Genesis (Neomet) Accuwell	39	1.9	0.3	0.4	1.9	1.1
Bio-Rad Quantase	98	1.8	0.4	0.6	1.7	1.0
MP Biomedicals (ICN) Enzyme	28	1.2	0.2	0.2	1.1	1.0
Interscientific Enzyme	60	1.4	0.2	0.2	1.5	0.9
HPLC	59	1.4	0.2	0.2	1.5	0.9
Derivatized-MS/MS Non-Kit	405	1.6	0.2	0.3	1.6	1.0
Non-derivatized MS/MS Non-Kit	62	1.6	0.2	0.3	1.7	1.0
Deriv-MS/MS PE NeoGram	120	1.6	0.1	0.2	1.7	0.9
Other	30	2.2	0.3	0.8	2.3	1.0
Lot 422 - Nonenriched 3 mg/dL whole blood						
Bacterial Inhibition Assays	67	4.5	0.6	0.8	1.7	0.9
Fluorometric Manual	69	5.1	0.4	0.6	2.0	1.0
Fluor Cont Flo, In house	22	5.9	0.5	1.8	2.3	1.2
Fluor cont Flo, Kit	119	5.0	0.3	0.7	2.1	1.0
Colorimetric	82	5.8	0.5	0.6	2.1	1.2
PerkinElmer Neonatal Kit	223	4.1	0.4	0.6	1.5	0.9
Neo-Genesis (Neomet) Accuwell	40	4.8	0.5	0.6	1.9	1.1
Bio-Rad Quantase	100	4.6	0.6	0.9	1.7	1.0
MP Biomedicals (ICN) Enzyme	30	3.9	0.6	0.7	1.1	1.0
Interscientific Enzyme	58	4.1	0.4	0.4	1.5	0.9
HPLC	69	4.3	0.3	0.5	1.5	0.9
Derivatized-MS/MS Non-Kit	402	4.5	0.4	0.8	1.6	1.0
Non-derivatized MS/MS Non-Kit	59	4.8	0.7	0.8	1.7	1.0
Deriv-MS/MS PE NeoGram	118	4.4	0.4	0.6	1.7	0.9
Other	30	5.3	0.5	0.6	2.3	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

PHENYLALANINE (mg Phe/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 423 - Nonenriched 7 mg/dL whole blood						
Bacterial Inhibition Assays	70	8.4	0.8	0.9	1.7	0.9
Fluorometric Manual	70	9.4	0.8	1.0	2.0	1.0
Fluor Cont Flo, In house	21	10.9	1.0	2.8	2.3	1.2
Fluor cont Flo, Kit	120	9.2	0.5	1.4	2.1	1.0
Colorimetric	80	11.2	0.8	1.2	2.1	1.2
PerkinElmer Neonatal Kit	220	7.9	0.7	1.1	1.5	0.9
Neo-Genesis (Neomet) Accuwell	39	9.6	0.8	0.9	1.9	1.1
Bio-Rad Quantase	100	9.1	0.9	1.7	1.7	1.0
MP Biomedicals (ICN) Enzyme	29	8.4	0.7	0.7	1.1	1.0
Interscientific Enzyme	60	8.4	0.8	1.0	1.5	0.9
HPLC	59	8.3	0.5	0.6	1.5	0.9
Derivatized-MS/MS Non-Kit	408	8.6	0.8	1.4	1.6	1.0
Non-derivatized MS/MS Non-Kit	59	9.3	1.3	1.5	1.7	1.0
Deriv-MS/MS PE NeoGram	119	8.1	0.7	1.0	1.7	0.9
Other	29	9.3	0.9	1.2	2.3	1.0
Lot 424 - Nonenriched 11 mg/dL whole blood						
Bacterial Inhibition Assays	67	11.7	1.2	1.2	1.7	0.9
Fluorometric Manual	72	13.0	1.3	1.5	2.0	1.0
Fluor Cont Flo, In house	21	15.9	1.2	4.1	2.3	1.2
Fluor cont Flo, Kit	119	12.4	0.7	2.0	2.1	1.0
Colorimetric	87	15.4	1.1	1.3	2.1	1.2
PerkinElmer Neonatal Kit	214	11.0	1.0	1.7	1.5	0.9
Neo-Genesis (Neomet) Accuwell	48	13.4	1.2	1.7	1.9	1.1
Bio-Rad Quantase	97	13.1	1.2	1.7	1.7	1.0
MP Biomedicals (ICN) Enzyme	30	12.3	1.1	1.2	1.1	1.0
Interscientific Enzyme	59	11.5	1.0	1.2	1.5	0.9
HPLC	70	11.6	0.7	1.3	1.5	0.9
Derivatized-MS/MS Non-Kit	405	12.3	1.0	2.0	1.6	1.0
Non-derivatized MS/MS Non-Kit	60	12.9	1.7	2.2	1.7	1.0
Deriv-MS/MS PE NeoGram	119	11.5	1.0	1.6	1.7	0.9
Other	30	13.2	1.5	2.0	2.3	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

PHENYLALANINE (mg Phe/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Nonenriched 0 mg/dL whole blood						
Bacterial Inhibition Assays	57	1.6	0.4	0.5	1.6	1.0
Fluorometric Manual	99	1.5	0.2	0.3	1.4	1.1
Fluor Cont Flo, In house	30	1.9	0.2	0.6	1.7	1.2
Fluor cont Flo, Kit	119	1.5	0.2	0.3	1.5	1.1
Colorimetric	78	1.4	0.2	0.2	1.3	1.3
PerkinElmer Neonatal Kit	287	1.2	0.2	0.3	1.1	1.0
Neo-Genesis (Neomet) Accuwell	40	1.6	0.3	0.3	1.4	1.1
Bio-Rad Quantase	118	1.5	0.4	0.5	1.3	1.1
MP Biomedicals (ICN) Enzyme	30	1.0	0.2	0.3	1.0	1.0
Interscientific Enzyme	58	1.3	0.1	0.2	1.1	1.1
HPLC	60	1.2	0.1	0.2	1.1	1.0
Derivatized-MS/MS Non-Kit	468	1.3	0.1	0.2	1.2	1.1
Non-derivatized MS/MS Non-Kit	68	1.5	0.3	0.3	1.4	1.1
Deriv-MS/MS PE NeoGram	127	1.3	0.1	0.2	1.3	1.0
Other	40	2.1	0.4	0.7	1.9	1.1
Lot 426 - Nonenriched 3 mg/dL whole blood						
Bacterial Inhibition Assays	60	4.5	0.7	0.8	1.6	1.0
Fluorometric Manual	99	4.7	0.4	0.5	1.4	1.1
Fluor Cont Flo, In house	30	5.2	0.3	1.0	1.7	1.2
Fluor cont Flo, Kit	119	4.7	0.3	0.7	1.5	1.1
Colorimetric	77	5.2	0.3	0.4	1.3	1.3
PerkinElmer Neonatal Kit	277	3.9	0.4	0.6	1.1	1.0
Neo-Genesis (Neomet) Accuwell	39	4.6	0.5	0.5	1.4	1.1
Bio-Rad Quantase	118	4.3	0.4	0.6	1.3	1.1
MP Biomedicals (ICN) Enzyme	29	4.2	0.4	0.4	1.0	1.0
Interscientific Enzyme	59	4.2	0.4	0.4	1.1	1.1
HPLC	70	4.0	0.2	0.4	1.1	1.0
Derivatized-MS/MS Non-Kit	476	4.3	0.4	0.6	1.2	1.1
Non-derivatized MS/MS Non-Kit	67	4.6	0.7	0.9	1.4	1.1
Deriv-MS/MS PE NeoGram	130	4.2	0.4	0.5	1.3	1.0
Other	39	5.1	0.6	0.7	1.9	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

PHENYLALANINE (mg Phe/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 427 - Nonenriched 7 mg/dL whole blood						
Bacterial Inhibition Assays	69	8.1	0.6	0.7	1.6	1.0
Fluorometric Manual	98	9.0	0.6	0.9	1.4	1.1
Fluor Cont Flo, In house	30	10.2	0.7	2.1	1.7	1.2
Fluor cont Flo, Kit	118	8.7	0.5	1.3	1.5	1.1
Colorimetric	77	10.3	0.5	0.7	1.3	1.3
PerkinElmer Neonatal Kit	277	7.9	0.7	1.2	1.1	1.0
Neo-Genesis (Neomet) Accuwell	39	8.9	0.8	0.8	1.4	1.1
Bio-Rad Quantase	120	8.8	0.7	1.1	1.3	1.1
MP Biomedicals (ICN) Enzyme	29	8.0	0.7	0.8	1.0	1.0
Interscientific Enzyme	59	8.5	0.9	1.1	1.1	1.1
HPLC	56	8.1	0.7	0.9	1.1	1.0
Derivatized-MS/MS Non-Kit	473	8.3	0.7	1.2	1.2	1.1
Non-derivatized MS/MS Non-Kit	67	9.2	1.0	1.3	1.4	1.1
Deriv-MS/MS PE NeoGram	130	8.0	0.8	1.0	1.3	1.0
Other	40	9.5	1.0	1.1	1.9	1.1
Lot 428 - Nonenriched 11 mg/dL whole blood						
Bacterial Inhibition Assays	68	12.2	1.0	1.2	1.6	1.0
Fluorometric Manual	96	13.5	1.2	1.8	1.4	1.1
Fluor Cont Flo, In house	30	15.5	1.0	2.9	1.7	1.2
Fluor cont Flo, Kit	119	13.2	0.7	2.1	1.5	1.1
Colorimetric	71	15.8	0.9	1.2	1.3	1.3
PerkinElmer Neonatal Kit	266	11.8	1.1	1.9	1.1	1.0
Neo-Genesis (Neomet) Accuwell	32	14.0	1.3	1.7	1.4	1.1
Bio-Rad Quantase	117	13.3	1.2	1.5	1.3	1.1
MP Biomedicals (ICN) Enzyme	27	12.6	0.7	0.9	1.0	1.0
Interscientific Enzyme	60	13.2	1.1	1.5	1.1	1.1
HPLC	72	12.2	1.5	2.0	1.1	1.0
Derivatized-MS/MS Non-Kit	473	13.0	1.2	1.9	1.2	1.1
Non-derivatized MS/MS Non-Kit	71	13.7	1.9	2.3	1.4	1.1
Deriv-MS/MS PE NeoGram	130	12.2	1.4	1.6	1.3	1.0
Other	40	14.5	2.1	2.6	1.9	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

LEUCINE (mg Leu/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Nonenriched 0 mg/dL whole blood						
Bacterial Inhibition Assays	10	2.7	0.8	0.8	1.8	1.3
Bio-Rad Quantase	10	3.7	0.6	0.6	3.5	1.3
HPLC	30	1.9	0.2	0.2	1.9	1.2
Derivatized-MS/MS Non-Kit	364	2.5	0.3	0.6	2.5	1.0
Non-derivatized MS/MS Non-Kit	28	2.4	0.2	0.2	2.5	0.9
Deriv-MS/MS PE NeoGram	118	2.4	0.3	0.3	2.4	0.9
Other	10	3.7	1.0	1.0	3.9	1.6
Lot 422 - Nonenriched 3 mg/dL whole blood						
Bacterial Inhibition Assays	10	5.2	2.4	2.4	1.8	1.3
Bio-Rad Quantase	10	7.1	0.8	0.8	3.5	1.3
HPLC	30	5.2	0.3	0.5	1.9	1.2
Derivatized-MS/MS Non-Kit	369	5.2	0.5	1.1	2.5	1.0
Non-derivatized MS/MS Non-Kit	30	5.2	0.7	0.7	2.5	0.9
Deriv-MS/MS PE NeoGram	115	5.1	0.5	0.5	2.4	0.9
Other	10	8.5	1.6	1.6	3.9	1.6
Lot 423 - Nonenriched 7 mg/dL whole blood						
Bacterial Inhibition Assays	10	9.6	2.8	2.8	1.8	1.3
Bio-Rad Quantase	10	13.1	1.2	1.2	3.5	1.3
HPLC	29	10.7	0.5	1.2	1.9	1.2
Derivatized-MS/MS Non-Kit	364	10.2	1.0	2.2	2.5	1.0
Non-derivatized MS/MS Non-Kit	30	9.9	1.2	1.8	2.5	0.9
Deriv-MS/MS PE NeoGram	118	9.5	0.8	0.9	2.4	0.9
Other	10	16.4	2.2	2.2	3.9	1.6
Lot 424 - Nonenriched 11 mg/dL whole blood						
Bacterial Inhibition Assays	10	17.2	3.8	3.8	1.8	1.3
Bio-Rad Quantase	10	18.3	1.4	1.4	3.5	1.3
HPLC	30	14.9	0.8	2.3	1.9	1.2
Derivatized-MS/MS Non-Kit	374	13.2	1.2	2.9	2.5	1.0
Non-derivatized MS/MS Non-Kit	30	12.4	1.4	1.8	2.5	0.9
Deriv-MS/MS PE NeoGram	120	12.5	1.2	1.4	2.4	0.9
Other	10	21.2	1.3	1.3	3.9	1.6

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

LEUCINE (mg Leu/dL whole blood)

- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Nonenriched 0 mg/dL whole blood						
Bacterial Inhibition Assays	10	2.0	0.0	0.0	2.2	0.8
Bio-Rad Quantase	10	3.1	0.5	0.5	2.9	1.5
Thin-Layer Chromotography	10	2.2	0.4	0.4	1.9	1.1
HPLC	29	1.7	0.1	0.1	1.4	1.4
Derivatized-MS/MS Non-Kit	415	2.1	0.2	0.5	2.0	1.2
Non-derivatized MS/MS Non-Kit	39	2.3	0.3	0.4	2.2	1.1
Deriv-MS/MS PE NeoGram	129	2.1	0.2	0.3	2.1	1.1
Other	10	2.9	0.8	0.8	2.2	1.5
Lot 426 - Nonenriched 3 mg/dL whole blood						
Bacterial Inhibition Assays	10	5.0	0.0	0.0	2.2	0.8
Bio-Rad Quantase	10	7.6	0.6	0.6	2.9	1.5
Thin-Layer Chromotography	10	5.0	0.0	0.0	1.9	1.1
HPLC	30	5.5	0.4	0.7	1.4	1.4
Derivatized-MS/MS Non-Kit	417	5.5	0.5	1.1	2.0	1.2
Non-derivatized MS/MS Non-Kit	39	5.4	0.8	0.9	2.2	1.1
Deriv-MS/MS PE NeoGram	128	5.3	0.5	0.5	2.1	1.1
Other	10	6.4	0.5	0.5	2.2	1.5
Lot 427 - Nonenriched 7 mg/dL whole blood						
Bacterial Inhibition Assays	10	7.2	0.4	0.4	2.2	0.8
Bio-Rad Quantase	10	13.2	0.7	0.7	2.9	1.5
Thin-Layer Chromotography	10	9.6	0.5	0.5	1.9	1.1
HPLC	30	10.6	0.9	1.5	1.4	1.4
Derivatized-MS/MS Non-Kit	420	9.9	0.9	1.8	2.0	1.2
Non-derivatized MS/MS Non-Kit	40	9.8	1.3	1.3	2.2	1.1
Deriv-MS/MS PE NeoGram	127	9.6	1.0	1.1	2.1	1.1
Other	10	12.0	1.0	1.0	2.2	1.5
Lot 428 - Nonenriched 11 mg/dL whole blood						
Bacterial Inhibition Assays	10	10.6	0.8	0.8	2.2	0.8
Bio-Rad Quantase	10	20.3	1.6	1.6	2.9	1.5
Thin-Layer Chromotography	10	14.4	0.5	0.5	1.9	1.1
HPLC	30	17.2	1.3	2.5	1.4	1.4
Derivatized-MS/MS Non-Kit	412	15.0	1.4	3.0	2.0	1.2
Non-derivatized MS/MS Non-Kit	40	14.5	1.6	1.9	2.2	1.1
Deriv-MS/MS PE NeoGram	125	14.0	1.3	1.3	2.1	1.1
Other	10	19.9	2.6	2.6	2.2	1.5

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

METHIONINE (mg Met/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromotography	10	0.0	0.0	0.0	0.2	0.7
HPLC	29	0.4	0.1	0.1	0.1	1.0
Derivatized-MS/MS Non-Kit	364	0.4	0.1	0.1	0.3	0.9
Non-derivatized MS/MS Non-Kit	20	0.4	0.1	0.2	0.2	0.8
Deriv-MS/MS PE NeoGram	118	0.5	0.1	0.2	0.5	1.0
Lot 422 - Enriched 1 mg/dL whole blood						
Thin-Layer Chromotography	9	1.0	0.0	0.0	0.2	0.7
HPLC	30	1.0	0.1	0.2	0.1	1.0
Derivatized-MS/MS Non-Kit	365	1.2	0.1	0.3	0.3	0.9
Non-derivatized MS/MS Non-Kit	20	1.0	0.3	0.3	0.2	0.8
Deriv-MS/MS PE NeoGram	119	1.5	0.2	0.3	0.5	1.0
Lot 423 - Enriched 3 mg/dL whole blood						
Thin-Layer Chromotography	10	2.6	0.5	0.5	0.2	0.7
HPLC	30	2.7	0.2	0.3	0.1	1.0
Derivatized-MS/MS Non-Kit	362	3.0	0.3	0.6	0.3	0.9
Non-derivatized MS/MS Non-Kit	20	2.6	0.3	0.3	0.2	0.8
Deriv-MS/MS PE NeoGram	120	3.4	0.3	0.5	0.5	1.0
Lot 424 - Enriched 6 mg/dL whole blood						
Thin-Layer Chromotography	10	4.4	0.5	0.5	0.2	0.7
HPLC	30	6.2	0.4	0.4	0.1	1.0
Derivatized-MS/MS Non-Kit	363	5.9	0.6	1.2	0.3	0.9
Non-derivatized MS/MS Non-Kit	19	5.3	0.5	0.5	0.2	0.8
Deriv-MS/MS PE NeoGram	120	6.5	0.7	1.0	0.5	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

METHIONINE (mg Met/dL whole blood)
- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromatography	10	0.0	0.0	0.0	-0.1	0.8
HPLC	29	0.3	0.1	0.1	0.1	0.9
Derivatized-MS/MS Non-Kit	409	0.3	0.1	0.1	0.3	0.8
Non-derivatized MS/MS Non-Kit	29	0.3	0.1	0.1	0.2	0.8
Deriv-MS/MS PE NeoGram	127	0.4	0.1	0.1	0.5	0.9
Lot 426 - Enriched 1 mg/dL whole blood						
Thin-Layer Chromatography	10	1.0	0.0	0.0	-0.1	0.8
HPLC	28	1.1	0.1	0.2	0.1	0.9
Derivatized-MS/MS Non-Kit	405	1.2	0.1	0.2	0.3	0.8
Non-derivatized MS/MS Non-Kit	30	1.1	0.3	0.3	0.2	0.8
Deriv-MS/MS PE NeoGram	129	1.4	0.2	0.2	0.5	0.9
Lot 427 - Enriched 3 mg/dL whole blood						
Thin-Layer Chromatography	10	2.0	0.0	0.0	-0.1	0.8
HPLC	28	2.6	0.2	0.3	0.1	0.9
Derivatized-MS/MS Non-Kit	409	2.8	0.3	0.5	0.3	0.8
Non-derivatized MS/MS Non-Kit	29	2.6	0.6	0.6	0.2	0.8
Deriv-MS/MS PE NeoGram	129	3.1	0.3	0.4	0.5	0.9
Lot 428 - Enriched 6 mg/dL whole blood						
Thin-Layer Chromatography	10	5.2	0.4	0.4	-0.1	0.8
HPLC	29	5.8	0.7	0.7	0.1	0.9
Derivatized-MS/MS Non-Kit	402	5.4	0.5	1.0	0.3	0.8
Non-derivatized MS/MS Non-Kit	29	5.2	1.1	1.2	0.2	0.8
Deriv-MS/MS PE NeoGram	129	5.8	0.7	0.8	0.5	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

TYROSINE (mg Tyr/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Enriched 0 µg/dL serum						
Fluor Cont Flo, Kit	20	2.2	0.2	0.3	2.1	1.2
Thin-Layer Chromotography	10	0.7	0.5	0.5	0.9	0.9
HPLC	49	1.3	0.1	0.4	1.2	1.0
Derivatized-MS/MS Non-Kit	366	1.3	0.1	0.3	1.3	0.9
Non-derivatized MS/MS Non-Kit	40	1.4	0.3	0.4	1.3	1.0
Deriv-MS/MS PE NeoGram	119	1.3	0.1	0.2	1.2	0.9
Other	10	2.9	0.4	0.4	3.0	0.9
Lot 422 - Enriched 1 µg/dL serum						
Fluor Cont Flo, Kit	20	3.3	0.3	0.5	2.1	1.2
Thin-Layer Chromotography	10	1.8	0.4	0.4	0.9	0.9
HPLC	58	2.2	0.1	0.5	1.2	1.0
Derivatized-MS/MS Non-Kit	363	2.2	0.2	0.4	1.3	0.9
Non-derivatized MS/MS Non-Kit	40	2.4	0.4	0.5	1.3	1.0
Deriv-MS/MS PE NeoGram	119	2.2	0.2	0.3	1.2	0.9
Other	10	4.0	0.6	0.6	3.0	0.9
Lot 423 - Enriched 3 µg/dL serum						
Fluor Cont Flo, Kit	20	5.4	0.3	1.0	2.1	1.2
Thin-Layer Chromotography	10	3.6	0.5	0.5	0.9	0.9
HPLC	50	4.1	0.3	0.6	1.2	1.0
Derivatized-MS/MS Non-Kit	371	3.9	0.4	0.8	1.3	0.9
Non-derivatized MS/MS Non-Kit	40	4.2	0.6	0.9	1.3	1.0
Deriv-MS/MS PE NeoGram	119	3.8	0.4	0.5	1.2	0.9
Other	10	5.7	0.5	0.5	3.0	0.9
Lot 424 - Enriched 8 µg/dL serum						
Fluor Cont Flo, Kit	20	11.4	0.8	2.2	2.1	1.2
Thin-Layer Chromotography	10	7.6	0.5	0.5	0.9	0.9
HPLC	59	9.3	0.6	1.0	1.2	1.0
Derivatized-MS/MS Non-Kit	375	8.6	0.8	1.6	1.3	0.9
Non-derivatized MS/MS Non-Kit	40	9.5	1.1	2.3	1.3	1.0
Deriv-MS/MS PE NeoGram	119	8.6	0.9	1.1	1.2	0.9
Other	9	10.5	0.8	0.8	3.0	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

TYROSINE (mg Tyr/dL whole blood)
- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Enriched 0 µg/dL serum						
Fluor Cont Flo, Kit	20	1.9	0.2	0.4	1.8	1.2
Thin-Layer Chromotography	10	1.0	0.0	0.0	1.2	0.8
HPLC	50	1.2	0.1	0.4	1.1	1.0
Derivatized-MS/MS Non-Kit	426	1.1	0.1	0.2	1.1	0.9
Non-derivatized MS/MS Non-Kit	40	1.2	0.2	0.3	1.2	1.0
Deriv-MS/MS PE NeoGram	118	1.1	0.1	0.1	1.1	0.9
Other	10	2.5	0.5	0.5	2.6	1.0
Lot 426 - Enriched 1 µg/dL serum						
Fluor Cont Flo, Kit	20	2.9	0.3	0.8	1.8	1.2
Thin-Layer Chromotography	10	2.0	0.0	0.0	1.2	0.8
HPLC	60	2.1	0.2	0.4	1.1	1.0
Derivatized-MS/MS Non-Kit	421	2.0	0.2	0.4	1.1	0.9
Non-derivatized MS/MS Non-Kit	38	2.1	0.3	0.5	1.2	1.0
Deriv-MS/MS PE NeoGram	119	2.0	0.2	0.3	1.1	0.9
Other	10	3.6	0.6	0.6	2.6	1.0
Lot 427 - Enriched 3 µg/dL serum						
Fluor Cont Flo, Kit	20	5.2	0.4	1.6	1.8	1.2
Thin-Layer Chromotography	10	3.6	0.5	0.5	1.2	0.8
HPLC	48	3.9	0.3	0.6	1.1	1.0
Derivatized-MS/MS Non-Kit	413	3.8	0.4	0.7	1.1	0.9
Non-derivatized MS/MS Non-Kit	40	4.4	0.6	0.9	1.2	1.0
Deriv-MS/MS PE NeoGram	118	3.7	0.4	0.4	1.1	0.9
Other	10	5.9	0.8	0.8	2.6	1.0
Lot 428 - Enriched 8 µg/dL serum						
Fluor Cont Flo, Kit	20	11.2	0.9	2.9	1.8	1.2
Thin-Layer Chromotography	10	7.2	0.4	0.4	1.2	0.8
HPLC	58	9.0	0.5	1.3	1.1	1.0
Derivatized-MS/MS Non-Kit	410	8.5	0.8	1.5	1.1	0.9
Non-derivatized MS/MS Non-Kit	40	9.2	1.5	2.3	1.2	1.0
Deriv-MS/MS PE NeoGram	116	8.2	0.7	0.8	1.1	0.9
Other	10	10.7	1.2	1.2	2.6	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

VALINE (mg Val/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromotography	10	1.4	0.5	0.5	1.4	0.6
HPLC	29	2.2	0.1	0.3	2.1	1.1
Derivatized-MS/MS Non-Kit	310	2.3	0.3	0.6	2.2	0.9
Non-derivatized MS/MS Non-Kit	20	1.8	0.2	0.2	1.7	0.8
Deriv-MS/MS PE NeoGram	109	1.7	0.2	0.3	1.7	0.7
Lot 422 - Nonenriched 1 mg/dL whole blood						
Thin-Layer Chromotography	10	2.2	0.4	0.4	1.4	0.6
HPLC	29	3.4	0.2	0.4	2.1	1.1
Derivatized-MS/MS Non-Kit	305	3.1	0.3	0.8	2.2	0.9
Non-derivatized MS/MS Non-Kit	20	2.5	0.3	0.3	1.7	0.8
Deriv-MS/MS PE NeoGram	109	2.5	0.4	0.4	1.7	0.7
Lot 423 - Nonenriched 3 mg/dL whole blood						
Thin-Layer Chromotography	10	3.0	0.0	0.0	1.4	0.6
HPLC	30	4.9	0.4	0.8	2.1	1.1
Derivatized-MS/MS Non-Kit	306	4.5	0.5	1.0	2.2	0.9
Non-derivatized MS/MS Non-Kit	20	3.9	0.7	0.9	1.7	0.8
Deriv-MS/MS PE NeoGram	109	3.6	0.4	0.6	1.7	0.7
Lot 424 - Nonenriched 6 mg/dL whole blood						
Thin-Layer Chromotography	10	5.0	0.7	0.7	1.4	0.6
HPLC	30	9.0	0.6	0.6	2.1	1.1
Derivatized-MS/MS Non-Kit	310	7.4	0.8	1.8	2.2	0.9
Non-derivatized MS/MS Non-Kit	20	6.4	0.7	1.2	1.7	0.8
Deriv-MS/MS PE NeoGram	109	5.9	0.6	0.9	1.7	0.7

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

VALINE (mg Val/dL whole blood)
- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromotography	10	1.6	0.5	0.5	1.8	0.5
HPLC	30	1.9	0.2	0.3	1.7	1.1
Derivatized-MS/MS Non-Kit	359	1.8	0.2	0.5	1.8	0.8
Non-derivatized MS/MS Non-Kit	20	1.5	0.2	0.3	1.5	0.7
Deriv-MS/MS PE NeoGram	107	1.4	0.2	0.2	1.4	0.7
Lot 426 - Nonenriched 1 mg/dL whole blood						
Thin-Layer Chromotography	10	2.4	0.5	0.5	1.8	0.5
HPLC	30	2.9	0.2	0.4	1.7	1.1
Derivatized-MS/MS Non-Kit	366	2.6	0.3	0.7	1.8	0.8
Non-derivatized MS/MS Non-Kit	20	2.3	0.3	0.3	1.5	0.7
Deriv-MS/MS PE NeoGram	110	2.1	0.3	0.4	1.4	0.7
Lot 427 - Nonenriched 3 mg/dL whole blood						
Thin-Layer Chromotography	10	3.6	0.5	0.5	1.8	0.5
HPLC	29	4.8	0.3	0.5	1.7	1.1
Derivatized-MS/MS Non-Kit	363	4.2	0.4	0.9	1.8	0.8
Non-derivatized MS/MS Non-Kit	20	3.7	0.4	0.5	1.5	0.7
Deriv-MS/MS PE NeoGram	109	3.4	0.5	0.6	1.4	0.7
Lot 428 - Nonenriched 6 mg/dL whole blood						
Thin-Layer Chromotography	10	4.6	0.5	0.5	1.8	0.5
HPLC	30	8.7	0.6	1.1	1.7	1.1
Derivatized-MS/MS Non-Kit	365	6.9	0.8	1.6	1.8	0.8
Non-derivatized MS/MS Non-Kit	20	6.0	0.6	0.6	1.5	0.7
Deriv-MS/MS PE NeoGram	108	5.6	0.7	1.0	1.4	0.7

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

CITRULLINE (mg Cit/dL whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 421 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromotography	9	0.0	0.0	0.0	0.0	0.8
Derivatized-MS/MS Non-Kit	329	0.5	0.1	0.1	0.5	0.7
Non-derivatized MS/MS Non-Kit	18	0.4	0.2	0.2	0.4	0.6
Deriv-MS/MS PE NeoGram	118	0.6	0.1	0.1	0.6	1.0
Lot 422 - Nonenriched 0.5 mg/dL whole blood						
Thin-Layer Chromotography	10	0.2	0.4	0.4	0.0	0.8
Derivatized-MS/MS Non-Kit	329	0.8	0.1	0.3	0.5	0.7
Non-derivatized MS/MS Non-Kit	18	0.7	0.2	0.2	0.4	0.6
Deriv-MS/MS PE NeoGram	117	1.1	0.1	0.1	0.6	1.0
Lot 423 - Nonenriched 1 mg/dL whole blood						
Thin-Layer Chromotography	9	1.0	0.0	0.0	0.0	0.8
Derivatized-MS/MS Non-Kit	333	1.2	0.2	0.4	0.5	0.7
Non-derivatized MS/MS Non-Kit	17	1.1	0.2	0.2	0.4	0.6
Deriv-MS/MS PE NeoGram	118	1.5	0.1	0.2	0.6	1.0
Lot 424 - Nonenriched 2.5 mg/dL whole blood						
Thin-Layer Chromotography	10	2.0	0.0	0.0	0.0	0.8
Derivatized-MS/MS Non-Kit	330	2.2	0.3	0.7	0.5	0.7
Non-derivatized MS/MS Non-Kit	18	2.0	0.5	0.5	0.4	0.6
Deriv-MS/MS PE NeoGram	118	3.0	0.2	0.4	0.6	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

CITRULLINE (mg Cit/dL whole blood)
- continued -

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 425 - Nonenriched 0 mg/dL whole blood						
Thin-Layer Chromotography	10	0.0	0.0	0.0	0.2	0.6
Derivatized-MS/MS Non-Kit	369	0.4	0.1	0.1	0.4	0.7
Non-derivatized MS/MS Non-Kit	20	0.4	0.1	0.1	0.4	0.7
Deriv-MS/MS PE NeoGram	116	0.5	0.1	0.1	0.5	0.9
Lot 426 - Nonenriched 1 mg/dL whole blood						
Thin-Layer Chromotography	9	1.0	0.0	0.0	0.2	0.6
Derivatized-MS/MS Non-Kit	366	1.1	0.1	0.3	0.4	0.7
Non-derivatized MS/MS Non-Kit	20	1.0	0.2	0.3	0.4	0.7
Deriv-MS/MS PE NeoGram	118	1.5	0.1	0.2	0.5	0.9
Lot 427 - Nonenriched 3 mg/dL whole blood						
Thin-Layer Chromotography	10	2.0	0.0	0.0	0.2	0.6
Derivatized-MS/MS Non-Kit	366	2.5	0.3	0.7	0.4	0.7
Non-derivatized MS/MS Non-Kit	20	2.5	0.6	0.6	0.4	0.7
Deriv-MS/MS PE NeoGram	115	3.2	0.3	0.4	0.5	0.9
Lot 428 - Nonenriched 6 mg/dL whole blood						
Thin-Layer Chromotography	10	3.8	0.4	0.4	0.2	0.6
Derivatized-MS/MS Non-Kit	374	4.7	0.7	1.3	0.4	0.7
Non-derivatized MS/MS Non-Kit	19	4.3	1.1	1.1	0.4	0.7
Deriv-MS/MS PE NeoGram	117	6.2	0.5	0.7	0.5	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

ACETYLCARNITINE ($\mu\text{mol C2/L}$ whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	515	24.69	2.46	5.38	22.67	0.8
Non-derivatized MS/MS Non-Kit	49	20.76	2.46	2.46	19.20	0.7
Deriv-MS/MS PE NeoGram	89	27.99	2.92	3.73	26.25	0.5
Non-deriv MS/MS PE NeoGram	20	22.66	1.51	2.25	20.81	1.0
Lot 462 - Enriched 5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	515	25.93	2.62	5.54	22.67	0.8
Non-derivatized MS/MS Non-Kit	49	22.36	2.72	2.91	19.20	0.7
Deriv-MS/MS PE NeoGram	88	27.70	2.71	3.45	26.25	0.5
Non-deriv MS/MS PE NeoGram	19	25.43	2.29	2.53	20.81	1.0
Lot 463 - Enriched 10 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	513	28.04	2.67	5.73	22.67	0.8
Non-derivatized MS/MS Non-Kit	49	23.83	2.76	3.31	19.20	0.7
Deriv-MS/MS PE NeoGram	88	28.63	2.69	3.48	26.25	0.5
Non-deriv MS/MS PE NeoGram	19	26.56	2.90	3.10	20.81	1.0
Lot 464 - Enriched 20 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	514	40.63	3.96	8.45	22.67	0.8
Non-derivatized MS/MS Non-Kit	49	34.79	4.40	5.11	19.20	0.7
Deriv-MS/MS PE NeoGram	88	36.84	3.68	5.17	26.25	0.5
Non-deriv MS/MS PE NeoGram	20	41.55	2.19	3.92	20.81	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

PROPIONYLCARNITINE (μmol C3/L whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	535	2.17	0.26	0.40	1.93	1.1
Non-derivatized MS/MS Non-Kit	48	1.94	0.35	0.40	1.80	1.1
Deriv-MS/MS PE NeoGram	92	2.28	0.25	0.32	1.97	1.2
Non-deriv MS/MS PE NeoGram	20	2.15	0.22	0.36	1.86	1.2
Lot 462 - Enriched 3 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	530	5.02	0.64	0.93	1.93	1.1
Non-derivatized MS/MS Non-Kit	46	4.80	0.48	0.50	1.80	1.1
Deriv-MS/MS PE NeoGram	92	5.16	0.48	0.70	1.97	1.2
Non-deriv MS/MS PE NeoGram	19	5.09	0.37	0.47	1.86	1.2
Lot 463 - Enriched 7.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	539	10.36	1.26	1.99	1.93	1.1
Non-derivatized MS/MS Non-Kit	47	10.57	1.67	2.89	1.80	1.1
Deriv-MS/MS PE NeoGram	92	10.67	0.94	1.42	1.97	1.2
Non-deriv MS/MS PE NeoGram	20	10.47	0.86	1.44	1.86	1.2
Lot 464 - Enriched 12 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	530	15.58	1.82	3.07	1.93	1.1
Non-derivatized MS/MS Non-Kit	48	15.17	2.65	3.22	1.80	1.1
Deriv-MS/MS PE NeoGram	90	16.32	1.42	2.11	1.97	1.2
Non-deriv MS/MS PE NeoGram	19	16.16	0.79	2.80	1.86	1.2

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

BUTYRYLCARNITINE (μmol C4/L whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	515	0.29	0.06	0.10	0.22	0.9
Non-derivatized MS/MS Non-Kit	49	0.37	0.15	0.24	0.26	0.9
Deriv-MS/MS PE NeoGram	79	0.31	0.07	0.10	0.21	0.8
Non-deriv MS/MS PE NeoGram	19	0.34	0.13	0.13	0.25	0.9
Lot 462 - Enriched 1 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	514	1.10	0.15	0.25	0.22	0.9
Non-derivatized MS/MS Non-Kit	50	1.06	0.21	0.30	0.26	0.9
Deriv-MS/MS PE NeoGram	80	0.99	0.21	0.23	0.21	0.8
Non-deriv MS/MS PE NeoGram	20	1.25	0.23	0.25	0.25	0.9
Lot 463 - Enriched 2.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	521	2.39	0.30	0.52	0.22	0.9
Non-derivatized MS/MS Non-Kit	50	2.23	0.44	0.49	0.26	0.9
Deriv-MS/MS PE NeoGram	78	2.13	0.33	0.39	0.21	0.8
Non-deriv MS/MS PE NeoGram	19	2.29	0.48	0.50	0.25	0.9
Lot 464 - Enriched 5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	516	4.82	0.57	0.99	0.22	0.9
Non-derivatized MS/MS Non-Kit	50	4.58	0.89	0.94	0.26	0.9
Deriv-MS/MS PE NeoGram	79	4.40	0.64	0.88	0.21	0.8
Non-deriv MS/MS PE NeoGram	20	5.04	0.69	0.76	0.25	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

ISOVALERYLCARNITINE ($\mu\text{mol C5/L}$ whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	515	0.20	0.04	0.06	0.15	1.1
Non-derivatized MS/MS Non-Kit	50	0.18	0.07	0.09	0.15	0.9
Deriv-MS/MS PE NeoGram	98	0.21	0.06	0.08	0.17	1.0
Non-deriv MS/MS PE NeoGram	19	0.18	0.05	0.07	0.12	1.0
Lot 462 - Enriched 0.5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	521	0.66	0.10	0.14	0.15	1.1
Non-derivatized MS/MS Non-Kit	49	0.56	0.14	0.18	0.15	0.9
Deriv-MS/MS PE NeoGram	100	0.62	0.12	0.13	0.17	1.0
Non-deriv MS/MS PE NeoGram	19	0.56	0.12	0.12	0.12	1.0
Lot 463 - Enriched 1.5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	520	1.77	0.21	0.36	0.15	1.1
Non-derivatized MS/MS Non-Kit	50	1.56	0.36	0.43	0.15	0.9
Deriv-MS/MS PE NeoGram	99	1.60	0.25	0.28	0.17	1.0
Non-deriv MS/MS PE NeoGram	20	1.64	0.37	0.50	0.12	1.0
Lot 464 - Enriched 3 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	527	3.43	0.40	0.70	0.15	1.1
Non-derivatized MS/MS Non-Kit	49	2.90	0.56	0.70	0.15	0.9
Deriv-MS/MS PE NeoGram	98	3.09	0.41	0.46	0.17	1.0
Non-deriv MS/MS PE NeoGram	20	3.21	0.43	0.65	0.12	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

GLUTARYLCARNITINE (μmol C5DC/L whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - CDC Assayed 0.07 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	495	0.05	0.02	0.04	-0.01	0.8
Non-derivatized MS/MS Non-Kit	30	0.03	0.02	0.02	0.01	0.3
Deriv-MS/MS PE NeoGram	98	0.06	0.03	0.04	-0.01	0.9
Non-deriv MS/MS PE NeoGram	20	0.24	0.04	0.05	0.08	1.7

Lot 462 - CDC Assayed 0.24 μmol/L whole blood

Derivatized-MS/MS Non-Kit	492	0.19	0.06	0.17	-0.01	0.8
Non-derivatized MS/MS Non-Kit	30	0.07	0.04	0.05	0.01	0.3
Deriv-MS/MS PE NeoGram	97	0.22	0.05	0.08	-0.01	0.9
Non-deriv MS/MS PE NeoGram	20	0.48	0.09	0.28	0.08	1.7

Lot 463 - CDC Assayed 0.44 μmol/L whole blood

Derivatized-MS/MS Non-Kit	484	0.33	0.07	0.21	-0.01	0.8
Non-derivatized MS/MS Non-Kit	30	0.16	0.05	0.08	0.01	0.3
Deriv-MS/MS PE NeoGram	96	0.40	0.08	0.13	-0.01	0.9
Non-deriv MS/MS PE NeoGram	20	0.81	0.18	0.56	0.08	1.7

Lot 464 - CDC Assayed 0.78 μmol/L whole blood

Derivatized-MS/MS Non-Kit	482	0.62	0.14	0.48	-0.01	0.8
Non-derivatized MS/MS Non-Kit	30	0.26	0.08	0.15	0.01	0.3
Deriv-MS/MS PE NeoGram	96	0.72	0.14	0.27	-0.01	0.9
Non-deriv MS/MS PE NeoGram	20	1.47	0.19	1.18	0.08	1.7

Note that for both kit and non-kit users, the calculation of concentrations for the quality control lots varied with type of internal standard. Data are not sorted by internal standard type. In a survey, participants reported using d₉-C5, d₃-C8, d₃-C10, d₃-C12, d₃-C16, or d₆-C5DC as an internal standard for C5DC.

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus CDC assayed concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

HEXANOYLCARNITINE ($\mu\text{mol C6/L}$ whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	495	0.05	0.02	0.04	0.02	0.9
Non-derivatized MS/MS Non-Kit	40	0.02	0.02	0.03	0.00	0.8
Deriv-MS/MS PE NeoGram	99	0.05	0.03	0.03	0.03	0.9
Non-deriv MS/MS PE NeoGram	20	0.03	0.02	0.02	0.00	0.9
Lot 462 - Enriched 0.5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	498	0.44	0.07	0.11	0.02	0.9
Non-derivatized MS/MS Non-Kit	40	0.36	0.08	0.10	0.00	0.8
Deriv-MS/MS PE NeoGram	100	0.44	0.09	0.11	0.03	0.9
Non-deriv MS/MS PE NeoGram	20	0.41	0.09	0.09	0.00	0.9
Lot 463 - Enriched 1.0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	501	0.93	0.14	0.25	0.02	0.9
Non-derivatized MS/MS Non-Kit	39	0.76	0.13	0.17	0.00	0.8
Deriv-MS/MS PE NeoGram	98	0.85	0.16	0.21	0.03	0.9
Non-deriv MS/MS PE NeoGram	19	0.81	0.18	0.18	0.00	0.9
Lot 464 - Enriched 2.5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	497	2.31	0.29	0.55	0.02	0.9
Non-derivatized MS/MS Non-Kit	40	1.95	0.30	0.41	0.00	0.8
Deriv-MS/MS PE NeoGram	98	2.16	0.38	0.41	0.03	0.9
Non-deriv MS/MS PE NeoGram	19	2.14	0.33	0.33	0.00	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

OCTANOYLCARNITINE (μmol C8/L whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	518	0.08	0.03	0.04	0.05	1.1
Non-derivatized MS/MS Non-Kit	74	0.06	0.03	0.04	0.02	1.1
Deriv-MS/MS PE NeoGram	91	0.07	0.03	0.04	0.06	1.0
Non-deriv MS/MS PE NeoGram	20	0.07	0.03	0.04	0.03	1.1
Lot 462 - Enriched 0.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	516	0.56	0.08	0.11	0.05	1.1
Non-derivatized MS/MS Non-Kit	74	0.51	0.08	0.08	0.2	1.1
Deriv-MS/MS PE NeoGram	92	0.51	0.10	0.10	0.06	1.0
Non-deriv MS/MS PE NeoGram	20	0.53	0.13	0.13	0.03	1.1
Lot 463 - Enriched 1.0 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	521	1.16	0.15	0.23	0.05	1.1
Non-derivatized MS/MS Non-Kit	73	1.13	0.13	0.14	0.02	1.1
Deriv-MS/MS PE NeoGram	92	1.06	0.20	0.22	0.06	1.0
Non-deriv MS/MS PE NeoGram	19	1.10	0.17	0.17	0.03	1.1
Lot 464 - Enriched 2.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	527	2.80	0.33	0.52	0.05	1.1
Non-derivatized MS/MS Non-Kit	76	2.76	0.33	0.40	0.02	1.1
Deriv-MS/MS PE NeoGram	94	2.47	0.36	0.44	0.06	1.0
Non-deriv MS/MS PE NeoGram	20	2.78	0.42	0.43	0.03	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

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Summaries of Statistical Analyses

DECANOYLCARNITINE ($\mu\text{mol C10/L}$ whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	517	0.08	0.03	0.04	0.05	1.3
Non-derivatized MS/MS Non-Kit	48	0.07	0.03	0.04	0.02	1.3
Deriv-MS/MS PE NeoGram	106	0.07	0.03	0.04	0.06	0.9
Non-deriv MS/MS PE NeoGram	19	0.07	0.03	0.04	0.04	1.0
Lot 462 - Enriched 0.25 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	522	0.34	0.07	0.10	0.05	1.3
Non-derivatized MS/MS Non-Kit	50	0.31	0.06	0.08	0.02	1.3
Deriv-MS/MS PE NeoGram	108	0.26	0.06	0.07	0.06	0.9
Non-deriv MS/MS PE NeoGram	19	0.26	0.05	0.05	0.04	1.0
Lot 463 - Enriched 0.75 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	514	0.98	0.16	0.26	0.05	1.3
Non-derivatized MS/MS Non-Kit	48	0.93	0.16	0.19	0.02	1.3
Deriv-MS/MS PE NeoGram	109	0.71	0.12	0.17	0.06	0.9
Non-deriv MS/MS PE NeoGram	20	0.77	0.23	0.23	0.04	1.0
Lot 464 - Enriched 1.5 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	518	1.95	0.30	0.50	0.05	1.3
Non-derivatized MS/MS Non-Kit	49	1.95	0.31	0.39	0.02	1.3
Deriv-MS/MS PE NeoGram	107	1.35	0.22	0.30	0.06	0.9
Non-deriv MS/MS PE NeoGram	19	1.53	0.28	0.28	0.04	1.0

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

2005 Quality Control Data
Summaries of Statistical Analyses

MYRISTOYLCARNITINE (μmol C14/L whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	487	0.17	0.05	0.07	0.13	1.0
Non-derivatized MS/MS Non-Kit	37	0.16	0.08	0.12	0.11	1.0
Deriv-MS/MS PE NeoGram	79	0.14	0.04	0.04	0.11	0.9
Non-deriv MS/MS PE NeoGram	19	0.13	0.04	0.09	0.05	0.9
Lot 462 - Enriched 0.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	483	0.58	0.08	0.12	0.13	1.0
Non-derivatized MS/MS Non-Kit	37	0.59	0.11	0.17	0.11	1.0
Deriv-MS/MS PE NeoGram	82	0.50	0.10	0.12	0.11	0.9
Non-deriv MS/MS PE NeoGram	20	0.50	0.10	0.23	0.05	0.9
Lot 463 - Enriched 1.5 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	499	1.62	0.28	0.40	0.13	1.0
Non-derivatized MS/MS Non-Kit	37	1.60	0.36	0.43	0.11	1.0
Deriv-MS/MS PE NeoGram	82	1.37	0.19	0.27	0.11	0.9
Non-deriv MS/MS PE NeoGram	20	1.34	0.24	0.57	0.05	0.9
Lot 464 - Enriched 3 μmol/L whole blood						
Derivatized-MS/MS Non-Kit	485	3.11	0.41	0.70	0.13	1.0
Non-derivatized MS/MS Non-Kit	38	3.20	0.47	0.56	0.11	1.0
Deriv-MS/MS PE NeoGram	82	2.68	0.39	0.57	0.11	0.9
Non-deriv MS/MS PE NeoGram	20	2.92	0.41	1.30	0.05	0.9

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus CDC assayed concentrations and extrapolating the regression to the Y-axis.

2004 Quality Control Data
Summaries of Statistical Analyses

PALMITOYL Carnitine ($\mu\text{mol C16/L}$ whole blood)

Method	N	Mean	Average Within Lab SD	Total SD	Y- Intercept*	Slope
Lot 461 - Nonenriched 0 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	519	1.50	0.17	0.33	1.16	1.0
Non-derivatized MS/MS Non-Kit	48	1.45	0.30	0.39	1.20	1.0
Deriv-MS/MS PE NeoGram	97	1.29	0.20	0.24	1.06	0.9
Non-deriv MS/MS PE NeoGram	20	1.55	0.22	0.22	1.10	1.1
Lot 462 - Enriched 4 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	505	4.71	0.51	0.96	1.16	1.0
Non-derivatized MS/MS Non-Kit	49	4.88	1.03	1.48	1.20	1.0
Deriv-MS/MS PE NeoGram	97	4.29	0.50	0.64	1.06	0.9
Non-deriv MS/MS PE NeoGram	20	5.16	0.82	0.82	1.10	1.1
Lot 463 - Enriched 8 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	511	8.98	0.90	1.78	1.16	1.0
Non-derivatized MS/MS Non-Kit	50	9.37	1.54	2.27	1.20	1.0
Deriv-MS/MS PE NeoGram	99	8.05	1.21	1.57	1.06	0.9
Non-deriv MS/MS PE NeoGram	19	9.13	0.89	1.74	1.10	1.1
Lot 464 - Enriched 12 $\mu\text{mol/L}$ whole blood						
Derivatized-MS/MS Non-Kit	518	13.38	1.37	2.63	1.16	1.0
Non-derivatized MS/MS Non-Kit	50	13.49	1.86	3.72	1.20	1.0
Deriv-MS/MS PE NeoGram	98	11.80	1.36	2.01	1.06	0.9
Non-deriv MS/MS PE NeoGram	20	14.86	1.12	1.53	1.10	1.1

*Estimated by performing a weighted linear regression analysis of mean reported concentrations versus enriched concentrations and extrapolating the regression to the Y-axis.

